AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions of claims in this application.

1. (Currently Amended) A scene classification apparatus of video for classifying a sequence of shots into a dynamic scene with much motion or a static scene with little motion, where the dynamic scene and the static scene respectively include a plurality of continuous shots and are thus a larger unit than a shot, comprising:

a shot segmentation device to segment the video into respective shots based on a cut points;

a calculator for calculating shot density DS of the video per a time unit from the respective segmented shots;

a calculator for calculating motion intensity per unit region on an image using a value of motion vectors of the respective segmented shots; and

a dynamic/static scene classifier for classifying the sequence of shots into the dynamic scene with much motion, [[or]] the static scene with little motion or an other scene except the dynamic scene and static scene based on the shot density and the motion intensity of the respective segmented shots, wherein each scene includes a plurality of cut points,

wherein the dynamic/static scene classifier classifies a sequence of shots whose shot density is larger than a first reference density and whose motion intensity is stronger than a first reference intensity into the dynamic scene, and classifies a shot whose shot density is smaller

than a second reference density and whose motion intensity is weaker than a second reference

intensity into the static scene,

wherein a sequence of shots whose shot density is not larger than the first reference

density or whose motion intensity is not stronger than the first reference intensity, and a shot

whose shot density is not smaller than the second reference density or whose motion intensity is

not weaker than the second reference intensity are classified as neither the dynamic scene nor the

static scene.

2. (Cancelled).

3. (Cancelled).

4. (Previously Presented) A scene classification apparatus of video for classifying a

sequence of shots into a slow scene, where the slow scene includes a plurality of continuous shot

and is thus a larger unit than a shot, comprising:

a shot segmentation device to segment the video into respective shots based on cut

points;

an extractor for extracting from the respective segmented shots a shot similar to a current

target shot from shots after a shot before the current target shot only by a predetermined interval;

and

a slow scene detector for classifying the target shot into a slow scene of the shot similar to the current target shot based on motion intensity of the current target shot and the shot similar to the current target shot, wherein each scene includes a plurality of cut points.

5. (Previously Presented) The scene classification apparatus of video according to claim 4, wherein the slow scene detector classifies the target shot into the slow scene of the shot similar to the current target shot when the motion intensity of the shot similar to the current target shot is stronger than the motion intensity of the current target shot.

6. (Original) The scene classification apparatus of video according to claim 4 or 5, further comprising a first highlight scene detector for classifying a scene composed of a plurality of shots continued just before the slow scene into a first highlight scene.

7. (Original) The scene classification apparatus of video according to claim 6, further comprising:

detector for detecting intensity of an audio signal accompanied by the video into shot; and

a second highlight scene detector for classifying a scene composed of a plurality of shots continued before and after a shot with the audio signal intensity stronger than the predetermined intensity into a second highlight scene,

wherein the scene classified into the first highlight scene and the second highlight scene is classified into the highlight scene.

8. (Original) The scene classification apparatus of video according to claim 7, further comprising:

a commercial scene detector for classifying the respective shots into a commercial scene,

wherein a scene classified into a scene other than the first highlight scene, the second highlight scene and the commercial scene is classified into the highlight scene.

9. (Previously Presented) A scene classification apparatus of video for classifying a sequence of shots into a scene in which a camera operation has been performed, where the scene in which the camera operation has been performed includes a plurality of continuous shots and is thus a larger unit than a shot, comprising:

a shot segmentation device to segment the video into respective shots based on cut points;

a detector for detecting a histogram relating to motion directions of the respective segmented shots; and

a detector for detecting the scene in which the camera operation has been performed based on the histogram of motion direction, wherein each scene includes a plurality of cut points.

10. (Original) The scene classification apparatus of video according to claim 9, further comprising a zooming scene detector for, when the histogram of motion direction is uniform and a number of elements of respective bins is larger than a reference number of elements, classifying its shot into a zooming scene.

11. (Original) The scene classification apparatus of video according to claim 9, further including:

detector for detecting spatial distribution of motion of each shot; and

a panning scene detector for detecting whether the respective shots are a panning scene based on the histogram of motion direction and the spatial distribution of motion.

12. (Original) The scene classification apparatus of video according to claim 11, wherein when the histogram of motion direction is concentrated in one direction and the spatial distribution of motion is uniform, the panning scene detector classifies the shot into the panning scene.

13. (Previously Presented) A scene classification apparatus of video for classifying a sequence of shots into a commercial scene, where the commercial scene includes a plurality of continuous shots and is thus a larger unit than a shot, comprising:

a shot segmentation device to segment the video into respective shots based on cut points;

a detector for detecting a shot density DS of the video; and

a commercial scene detector for detecting the commercial scene by comparing a shot density detected during a predetermined interval with a predetermined reference shot density, wherein each scene includes a plurality of cut points.

14. (Previously Presented) A scene classification apparatus of video for classifying a sequence of shots into a commercial scene, where the commercial scene includes a plurality of continuous shots and is thus a larger unit than a shot, comprising:

a shot segmentation device to segment the video into respective shots based on cut points;

a detector for detecting a number of shot boundaries of the video; and

a commercial scene detector for detecting the commercial scene by comparing a number of shot boundaries detected during a predetermined interval with a predetermined reference number, and classifying the scene as the commercial scene in response to the comparing indicating that the number of shot boundaries detected during the predetermined interval is greater than the predetermined reference number, wherein each scene includes a plurality of cut points.

15. (Original) The scene classification apparatus of video according to claim 1 or 4, wherein the video are compressed data, and the motion intensity is detected by using a value of a motion vector of a predictive coding image existing in each shot.

16. (Original) The scene classification apparatus of video according to claim 11, wherein the video are compressed data, and the spatial distribution of motion is detected by using a value of a motion vector of a predictive coding image existing in each shot.

17. (Original) The scene classification apparatus of video according to claim 9, wherein the video are compressed data, and the histogram of motion direction is detected by using a value of a motion vector of a predictive coding image existing in each shot.

18. (Previously Presented) The scene classification apparatus of video according to claim 1 or 4, wherein the video are uncompressed data, and the motion intensity is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

19. (Previously Presented) The scene classification apparatus of video according to claim 1 or 4, wherein the video are uncompressed data, and the spatial distribution of motion is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

20. (Previously Presented) The scene classification apparatus of video according to claim 1 or 4, wherein the video are uncompressed data, and the histogram of motion direction is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

21. (Previously Presented) A scene classification apparatus of video for segmenting video into shots based on cut points and classifying each scene composed of one or more continuous shots based on a content of the scene, comprising:

a detector for detecting a highlight scene;

extracting and combining means for extracting and combining a plurality of highlight scenes; and

inserting means for inserting a video transition effect into a combined portion of the respective highlight scenes, the inserting means including a dynamic/static scene detector to detect whether a highlight scene is a dynamic scene with much motion or a static scene with little motion,

wherein the inserting means makes a type of the video transition effect to be inserted different according to whether the highlight scenes to be combined are the dynamic scene or the static scene, wherein each scene includes a plurality of cut points.

22. (Previously Presented) The scene classification apparatus of video according to claim 21, wherein when the highlight scene is the dynamic scene, the video transition effect with small change in an image mixing ratio is inserted therein, and when the highlight scene is the static scene, the video transition effect with large change in the image mixing ratio is inserted therein.

23. (Currently Amended) A scene classification method of video for classifying a sequence of shots into a dynamic scene with much motion or a static scene with little motion,

where the dynamic scene and the static scene respectively include a plurality of continuous shots and are thus a larger unit than a shot, comprising:

segmenting the video into respective shots using a shot segmentation device that segments the video based on cut points;

calculating shot density DS of the video per a time unit from the respective segmented shots;

calculating motion intensity per unit region on an image using a value of motion vectors of the respective segmented shots; and

classifying the sequence of shots into the dynamic scene with much motion, [[or]] the static scene with little motion <u>or an other scene except tie dynamic scene and static scene</u> based on the shot density and the motion intensity of the respective segmented shots, wherein each scene includes a plurality of cut points,

<u>wherein the classifying classifies a sequence of shots whose shot density is larger than a first reference density and whose motion intensity is stronger than a first reference intensity into the dynamic scene, and classifies a shot whose shot density is smaller than a second reference density and whose motion intensity is weaker than a second reference intensity into the static scene, and</u>

<u>wherein the classifying classifies a sequence of shots whose shot density is not larger than the first reference density or whose motion intensity is not stronger than the first reference intensity, and a shot whose shot density is not smaller than the second reference density or</u>

whose motion intensity is not weaker than the second reference intensity as neither the dynamic

scene nor the static scene.